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Institute of Materia Medica, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100050.

The effects of l-3-n-butylphthalide(l-NBP) and d-3-n-butylphthalide(d-NBP) on extracellular nitric oxide (NO) levels and intracellular cyclic GMP (cGMP) levels were studied in primary cultured rat cortical neuronal cells. Nitric oxide and cGMP levels were measured by using spectrometry and radioimmunological analysis(RIA), respectively. The results showed that d-NBP (0.1-100 μmol/L-1) markedly increased extracellular NO levels and intracellular cGMP levels in primary cultured neurons that were exposed for 10 h to hypoxic/hypoglycemic, N-methyl-D-aspartate (NMDA), or KCl media. On the contrary, l-NBP (0.1-100 μmol/L-1) significantly decreased extracellular NO levels and intracellular cGMP levels. It is suggested that there is a contrary effect of d-NBP and l-NBP on NO release and cGMP production induced by hypoxia/hypoglycemia, NMDA, or KCl.

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